

## Structure based approaches to enhance drug efficacy and safety

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### SY-06-01

#### Cytochrome P450 CYP11B enzymes: Ligand and adrenodoxin interactions

Emily Scott

University of Michigan, MI, USA



She earned a Ph.D. in Biochemistry and Cell Biology from Rice University for work on heme proteins, followed by postdoctoral training on mammalian cytochrome P450 enzymes under Dr. James Halpert at the Pharmacology Department at the University of Texas Medical Branch, partially supported by an NIH NRSA postdoctoral fellowship. Dr. Scott joined the faculty of the University of Kansas Department of Medicinal Chemistry where she rose through the ranks to professor before joining the University of Michigan. Dr. Emily Scott is currently a Professor in the Departments of Medicinal Chemistry, Pharmacology, and Program for Biophysics at the University of Michigan in the U.S. Dr. Scott's research focuses on the structure and function of human membrane cytochrome P450 enzymes, both those involved in xenobiotic metabolism and endogenous pathways such as steroidogenesis. Biochemical, biophysical, and structural biology approaches are used to investigate the selectivity of these versatile enzymes, but with an emphasis on X-ray crystallography and NMR spectroscopy. Notable awards include the ISSX North American New Investigator Award and the Early Career Achievement Award from the Drug Metabolism Division of The American Society of Pharmacology and Experimental Therapeutics.

**SY-06-02****Repurposing of efavirenz, an anti-HIV medication, for treatment of Alzheimer's disease?**

Irina Pikuleva

Department of Ophthalmology and Visual Sciences, Case Western Reserve University, OH, USA



Dr. Pikuleva received her B.S. degree from the Byelorussian State University (Minsk, Belarus) and her Ph.D. from the Byelorussian Academy of Sciences (Minsk, Belarus). After completing her postdoctoral training at Vanderbilt University (Nashville, TN, USA), Dr. Pikuleva became a faculty member in the Department of Pharmacology and Toxicology at the University of Texas Medical Branch (Galveston, TX, USA). Then Dr. Pikuleva moved to Case Western Reserve University (Cleveland, OH, USA), where she is currently a professor in the Department of Ophthalmology and Visual Sciences. The two major areas of research in Dr. Pikuleva's laboratory are studies of cholesterol metabolism in the brain and retina. The ultimate goal of these studies is to identify new therapeutic targets and treatments for diseases of the eye (age-related macular degeneration and diabetic retinopathy) and the brain (Alzheimer's disease).

**SY-06-03****Targeting CYP enzymes in the human pathogen *Mycobacterium tuberculosis***

Andrew Munro

Manchester Institute of Biotechnology, School of Chemistry, University of Manchester, UK



He is a Professor of Molecular Enzymology at the Manchester Institute of Biotechnology at the University of Manchester, UK. He graduated from the University of Aberdeen with a BSc (Hons) degree in Biochemistry (1987) followed by a PhD in Molecular Microbiology (1991). He researched cytochrome P450 enzymes as a Postdoc in the Dept. of Biochemistry at the University of Glasgow (1991-5) prior to holding a research fellowship in the Dept. of Chemistry the University of Edinburgh (1996-9), followed by a lectureship in the University of Strathclyde (Glasgow, 1999-2001). He then moved to the University of Leicester as a Senior Lecturer in Biochemistry, where he was promoted to a Readership and then to a Chair in Biochemistry (2001-5). In 2005 he moved to Manchester to work in the new Manchester Institute of Biotechnology (MIB), where he currently leads a research group working on enzymology, structure and biotechnology of cytochromes P450 and other redox enzymes.

SY-06-04

## Crystal structures of CYP90B1: Insights into brassinosteroid biosynthesis and its inhibition

Shingo Nagano

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1996 Doctor of Engineering, Ph.D. (Chemistry) Department of Molecular Engineering, Graduate School of Engineering, Kyoto University

1996-2000 Research Associate, Department of Biochemistry, School of Medicine, Keio University

2000-2002 JSPS Postdoctoral Fellow, Department of Molecular Biology and Biochemistry, University of California, Irvine

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